

In re Patent Application of:
ENRIQUEZ ET AL
Serial No. 10/090,291
Filed: MARCH 4, 2002

REMARKS

The claims have been amended to more particularly define applicants' invention. Reconsideration of this application in light of the foregoing amendments and following remarks is respectfully requested.

Claims 15-20 stand rejected under the provisions of 35 U.S.C. 103 as being unpatentable over the combination of the patents to Takato et al, 4,631,366, and McAndrews, 5,160,851, for the reasons discussed in item 1, bridging pages 2-5 of the outstanding office action. As will be demonstrated below, applicants respectfully submit that the cited prior art neither teaches nor suggests the invention as characterized in the currently amended claims, so that the application is believed to be in condition for allowance.

More particularly, applicants have amended independent Claim 15 (upon which Claims 16-20 depend), to more particularly recite the characteristics of the first and second current sources. Such current sources are shown, for example, in the composite tip and ring amplifier circuit of Figure 4 as current source 41T supplying the tip amplifier 10T and the ring current source 41R supplying the ring amplifier 10R. The current sources supply a current based upon the equation $I = V_{reg}/R$, where I is the regulated voltage provided by the voltage regulator 50.

The current source 41T derives its current exclusively from the current flowing through the current flow path between the battery 24 - the resistors 22 and 23 - and ground. The same is true of the current supplied by the ring current source 41R. These currents are respectively independent of the outputs of the tip and ring amplifiers 10T and 10R.

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In the patent to Takato et al, 4,631,366, on the other hand, there is no disclosure or suggestion of the aspects of the first and second current sources as delineated in Claim 15.

The office action equates amplifier A0 as a "tip" amplifier and amplifier A1 as a "ring" amplifier. The positive polarity inputs of these respective amplifiers are coupled to a current flow path, which exists between $-V_{BB}$ and ground through a set of series resistors R_{a1} - R_{b1} - R_{b0} - R_{a0} . In the statement of the rejection of Claim 15 on page 2 of the office action, it is alleged that a first current source corresponds to the transistor $Tr0$ that supposedly is operative to supply, to a second polarity input node of the tip amplifier in particular, the minus (-) input terminal of the amplifier A0, a first current derived in accordance with that flowing through the first current path.

This statement is inaccurate.

Attention may be directed to column 4, lines 6-24, of the patent to Takato et al, which state that a constant current flows through the resistors R_{e0} and R_{e1} and through the transistors $Tr0$ and $Tr1$. In particular, in lines 32-34 of column 4, Takato et al state that the constant current I_{sb} through the resistor R_{e0} becomes substantially the same as the current flowing across the transistor $Tr0$. This being the case, there is no current supplied by the transistor $Tr0$ through the resistor R_{f0} to the negative input terminal of amplifier A0. Moreover, even if there were such a current, it would have to depend upon the output of the amplifier A0, which drives the base of the transistor $Tr0$. This is in direct contradistinction of the interconnection and operation of the first current source of Claim 15, which specifies that the first current is derived in accordance with that flowing through the first current flow path and independent

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of the output of the tip amplifier. Such is not the case in the circuitry of the patent to Takato et al, discussed above.

The office action admits to the failure of the patent to Takato et al to recite the particulars of the voltage regulator in the last paragraph of Claim 15. This being recognized, it is then suggested that it would be obvious to make the origin of the supply voltage $-V_{BB}$ the rechargeable backup battery system of McAndrews.

Applicant submits that there is no suggestion for doing this in either of the patents to Takato et al or McAndrews. Even making the substitution, for which there is no suggestion in the cited prior art. Takato et al is not concerned with regulating the voltage $-V_{BB}$; the circuit of Takato et al is intended to operate without a regulated voltage. Takato et al are also not concerned with the circuitry of the present invention, in which the input currents to the tip and ring amplifiers are based upon the regulated voltage, and are independent of the output of the tip and ring amplifiers.

As pointed out above, Takato et al provide no current source to the negative input terminals of amplifiers A0 and A1 that are derived from a current flow path to which a regulated voltage is coupled, the currents being independent of the output of the respective tip and ring amplifiers. The voltage regulator of the present invention serves to regulate the voltage at node 21 and thereby the positive polarity inputs of the tip and ring amplifiers. There is no suggestion in McAndrews of coupling a voltage regulator to either the $-V_{BB}$ terminal or the terminal M2. Additionally, as stressed above, any current supplied to the negative input terminals of the amplifiers A0 and A1 of Takato et al, if at all supplied, but something which the patentees indicate does not occur, would have to be dependent upon the

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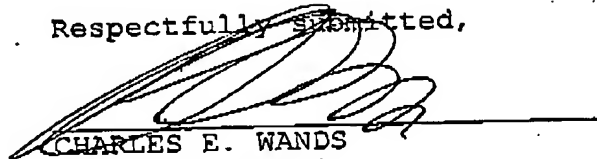
output of the amplifiers, since they drive the bases of the transistors Tr0 and Tr1. This is excluded by the definition of applicants' invention in the amended claims.

It is believed that, upon reconsideration, it will be realized that the prior art cited in the outstanding office action does not teach or suggest the invention characterized in applicants' amended Claims 15-20, so that the present application is now in condition for allowance. Favorable reconsideration of this application and a Notice of Allowability of Claims 15-20 is, accordingly, earnestly solicited.

Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 01-0484 and please credit any excess fees to such deposit account.

Respectfully submitted,



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